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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/551,914  
Filing Date: September 30, 2005  
Appellant(s): BLANCHARD, GILBERT

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Nancy K. Britt  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 5/2/2011 appealing from the Office action  
mailed 7/9/2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 16-19, 22, 24-34, and 36-37

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

### **(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

WO0110545	BLANCHARD ET AL.	02-2001
20060005465	BLANCHARD ET AL.	01-2006
20050066571	WAKEFIELD	03-2005

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 16-19, 22, 24-34, and 36-37, are rejected under 35 USC 103 (a) as being obvious over BLANCHARD ET AL. (WO0110545) used ENGLISH TRANSLATION BLANCHARD ET AL. (US PG PUB 20060005465), and in view of WAKEFIELD (US PG PUB 20050066571). Hereby referred to as BLANCHARD and WAKEFIELD.

1. Although WO0110545 is not in the English language, the examiner is relying on US PG PUB 20060005465 as the English translation thereof as is apparent because the US reference clearly shown on page 1 that this US reference is related to the WO reference. The paragraphs cited in the office action all refer to the paragraphs in the English transition (i.e. US reference).

Regarding claims 16-19, 22 and 28-29, and 36-37

BLANCHARD teaches an organic colloidal dispersion comprising: particles of at least a compound based on at least a rare earth, at least an acid, which is an amphiphilic acid (para 41), and at least a diluent, such as Cryo-TEM which is a preservative (**antioxidant**), characterized in that at least 90% of the particles are monocrystalline. The invention also concerns the method for preparing said dispersion and its use as an additive to diesel fuel for internal combustion engines (abstract), and conventional fuel (para 102). BLANCHARD also teaches that the rare earth can be selected from cerium, lanthanum, yttrium, neodymium, gadolinium and praseodymium (para 30).

Although BLANCHARD does not specifically teach antioxidants, this reference does in fact teach diluents that are cryo-TEM, aromatic solvents and alcohols which are disclosed as preservatives (see para 26) and it is the examiners position that antioxidants are also known in the art as preservatives. A skilled artisan would appreciate that additives are multifunctional, and it is known in the art that antioxidants and preservatives both have properties that inhibit oxidation. It has been held that obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art additive. Further, the fact that Appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd.Pat. App. & Inter. 1985); and burden is upon Appellant to show evidence of criticality.

BLANCHARD does not explicitly disclose that the diluent (antioxidant) are phenols, however WAKEFIELD does disclose the use of phenols as antioxidants.

WAKEFIELD teaches an additive comprising cerium oxide, a rare earth compound, a metal from group IIA and IIIB (**abstract**); and an antioxidant that is phenolic an

alkylphenol such as 2,6-di-tert-butylphenol (paragraph 53); which can be in an organic solvent (**paragraph 37**); and an organic carboxylic acid (**paragraph 27**) which is an amphiphilic acid.

It would have been obvious to one of ordinary skill in the art to combine the additive of BLANCHARD with the additive of WAKEFIELD if said composition was so desired, because all the claimed elements were known in the prior art at the time of invention and the motivation to combine BLANCHARD and WAKEFIELD is taught in WAKEFIELD in paragraph 5, that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion.

Regarding claim 24:

Modified BLANCHARD teaches in paragraph 37 the particles in the dispersions have a fine grain size with a narrow size distribution. They have a  $d_{50}$  in the range 1 to 5 nm.

Regarding claim 25:

Modified BLANCHARD teaches in abstract as describe in the rejection of claim 16 as well as the particle are not larger than 200 nm and d80 d90 is not more than 5 nanometers (para 198 and 127); and the aggregates comprising 1 (single) to 5 crystallites (para 25-26); the acid is an amphiphilic acid comprising at least one acid with 11 to 50 (10 to 50) carbon atoms, having at least one alpha, beta, gamma, or delta branch of the atom bearing the acidic hydrogen (para 41-50).

Regarding claim 26:

Modified BLANCHARD teaches in Example 1 the preparation of an organic colloidal solution of  $\text{CeO}_2$  produced From Cerium (III) Acetate, which is the preparation of

an organic colloidal solution of cerium oxide. In paragraph 202 BLANCHARD teaches that the precipitate obtained was dried with a Buchi spray drier.

Regarding claim 27:

Modified BLANCHARD teaches in paragraph 43 examples of fatty acids: tall oil, soya oil, tallow, linseed oil, oleic acid, linoleic acid, stearic acid and its isomers, pelargonic acid, capric acid, lauric acid, myristic acid, dodecylbenzenesulphonic acid, 2-ethyl hexanoic acid, naphthenic acid, hexoic acid, toluene sulphonic acid, toluene phosphonic acid, lauryl sulphonic acid, lauryl phosphonic acid, palmityl sulphonic acid, and palmityl phosphonic acid.

Regarding claims 30-32:

Modified BLANCHARD teaches in paragraph 83-86 that the colloidal dispersion comprising particles of a rare earth compound, an acid, an organic phase, an antioxidant, and an element E, wherein an atomic ratio of antioxidant to rare earth compound and the element E is 0.2 to 0.8.

Regarding claim 33:

Modified BLANCHARD teaches in paragraph 198-199 the preparation of a colloidal dispersion based on cerium-iron in respective proportions of 90/10 by weight.

Regarding claim 34:

Modified BLANCHARD teaches in paragraph 111 wherein a weight ratio between the organic phase and acid is 0.5.

## **(10) Response to Argument**

Appellant argues “*Appellants maintain that the references as combined fail to teach or suggest all features of Claim 16. The Office Action admits that "Blanchard*

*does not specifically teach antioxidants," but contends that "the diluents of aromatic solvents and alcohols are equivalent to antioxidants." (Final Office Action at page 4)" and "Blanchard discloses colloidal dispersions of rare earth, but there is no disclosure in Blanchard of the addition of an antioxidant agent or that the presence of an antioxidant in dispersion enhances the stability of particles in a fuel. Instead, Blanchard discloses the use of cryo-TEM to examine the state of aggregation of the elementary particles. The samples are kept frozen in their natural medium, which is either water or organic diluents such as aromatic or aliphatic solvents, for example Solvesso or Isopar, or certain alcohols such as ethanol. (See paragraph [0026]). Thus, the diluents, which the Office Action alleges are used as antioxidants, are used only for examination of samples to freeze the particles and help determine aggregation thereof by TEM. However, there is no teaching or suggestion in Blanchard to include the diluents in organic colloidal dispersion for addition to fuels." Arguments by Appellant filed 5/2/2011 in the Appeal Brief have been considered; however, they are not persuasive for the reasons set forth in the prior Office Action. Additionally, the arguments to the pending the pending claims are insufficient to overcome the rejection of record based upon the references applied under 35 USC 103 as set forth in the previous office action because: BLANCHARD teaches an organic colloidal dispersion comprising: particles of at least a compound based on at least a rare earth, with at least one element (E) (**element (E)**—**para 34-35 and EXAMPLE 6**), at least an acid, which is an amphiphilic acid (para 41), and at least diluents that are cryo-TEM, aromatic solvents (**i.e. phenol, an aromatic amine, tocopherol**) and alcohols (**i.e. phenol**) which are disclosed as preservatives*

**(antioxidant)** (see para 26), characterized in by at least 90% of the particles are monocrystalline. BLANCHARD is also concerned with the method for preparing said dispersion and its use as an additive to diesel fuel for internal combustion engines (abstract), and conventional fuel (para 102). BLANCHARD also teaches that the rare earth can be selected from **cerium**, lanthanum, yttrium, neodymium, gadolinium and praseodymium (para 30); and that element (E) can be iron (**wherein the rare earth compound is cerium and the element E is iron**) (para 34-35 and EXAMPLE 6).

WAKEFIELD teaches an additive comprising a rare earth compound, a metal (abstract); and **an antioxidant that is phenolic an alkylphenol such as 2,6-di-tert-butylphenol** (paragraph 53); which can be in an organic solvent (**paragraph 37**); and an organic carboxylic acid (**paragraph 27**) which is an amphiphilic acid. WAKEFIELD also teaches that the **metal can be iron** (para 8 and claim 4), and the **rare earth element is cerium** (para 8). Although BLANCHARD does not call its preservatives “antioxidants”, the reference does in fact teach that the diluents which are cryo-TEM, aromatic solvents and alcohols are preservatives (**i.e. functions as oxidation inhibitors**) (see para 26) and it is the examiners position that antioxidants are also known in the art as preservatives. A skilled artisan would appreciate that additives are multifunctional, and it is known in the art that antioxidants and preservatives both exhibit the same properties which is to inhibit oxidation. In addition, it would have been obvious to one of ordinary skill in the art to combine the additive of BLANCHARD with the additive of WAKEFIELD if said composition was so desired, because all the claimed elements were known in the prior art at the time of invention and the motivation to combine

BLANCHARD and WAKEFIELD is taught in WAKEFIELD in paragraph 5, that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion. Additionally, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by Appellant. See, e.g., *In re Kahn*, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (motivation question arises in the context of the general problem confronting the inventor rather than the specific problem solved by the invention); *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323, 76 USPQ2d 1662, 1685 (Fed. Cir. 2005) (“One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.”); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) (discussed below); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), cert. denied, 500 U.S. 904 (1991). Also, “[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968) Thus Appellant has not established evidence to the contrary or evidence of criticality; therefore the Examiner maintains the rejection of record.

Appellant argues “Moreover, Wakefield also fails to teach or suggest a dispersion comprising an antioxidant, and instead merely discloses the presence of an antioxidant in a fuel. Wakefield fails to recognize or suggest that the addition of the claimed

*antioxidant agent to the dispersion, and not the fuel itself, will improve the stability of the dispersion. Thus, Wakefield also fails to teach or suggest dispersions comprising an antioxidant. As such, the combination of Blanchard and Wakefield would not result in a colloidal dispersion comprising an antioxidant as recited in Claim 16, and Claim 16 is patentable over the references as combined.”* Arguments by Appellant are not deemed to be persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, WAKEFIELD teaches an additive comprising a rare earth compound, a metal (abstract); and **an antioxidant that is phenolic, an alkylphenol such as 2,6-di-tert-butylphenol** (paragraph 53); which can be in an organic solvent (paragraph 37); and an organic carboxylic acid (paragraph 27) which is an amphiphilic acid. WAKEFIELD also teaches that the **metal can be iron** (para 8 and see also claim 4), and the **rare earth element is cerium** (para 8). In addition, it would have been obvious to one of ordinary skill in the art to combine the additive of BLANCHARD with the additive of WAKEFIELD if said composition was so desired, because all the claimed elements were known in the prior art at the time of invention and the motivation to combine BLANCHARD and WAKEFIELD is taught in WAKEFIELD in paragraph 5, that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion. Additionally, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by Appellant. See, e.g., *In re Kahn*, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (motivation question arises in the context

of the general problem confronting the inventor rather than the specific problem solved by the invention); *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323, 76 USPQ2d 1662, 1685 (Fed. Cir. 2005) (“One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.”); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) (discussed below); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), cert. denied, 500 U.S. 904 (1991). Also, “[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968) Thus Appellant has not established evidence to the contrary or evidence of criticality; therefore the Examiner maintains the rejection of record.

Appellant Argues “*Additionally, Appellants have found that the claimed dispersions including antioxidants exhibit superior properties as compared to prior art fuel additives that do not include antioxidants. For example, Appellants unexpectedly found that the addition of antioxidant improved the ability of cerium to remain in a condition of colloidal dispersion as compared to comparative examples without antioxidant. As shown in Example 1, quantities of diesel fuel and dispersion are such that the initial cerium content of the mixture formed is 7 ppm. (page 14, lines 36-38).*

*Table 1, reproduced below, shows that when an antioxidant is included, all or nearly all the initial cerium content is found, indicating that it has remained in the state of a colloidal dispersion. Such evidence of unobvious or unexpected advantageous*

*properties, such as superiority in a property the claimed compound shares with the prior art, can rebut prima facie obviousness. MPEP §716.02(a)(11). Thus, independent Claim 16 is further patentable over the references as combined.”* This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, Appellant argues that the claimed composition produces unexpectedly superior results, and points to Example 1 and TABLE 1. However, the composition used in Example 1 and TABLE 1 are not commensurate in scope with the claims. In particular, the sample compositions comprise specific concentrations of the antioxidant, whereas the claimed invention is unrestricted regarding the antioxidant concentrations. Appellant therefore has not shown evidence of unexpected results sufficient to rebut the prima facie case of obviousness set forth above especially since the prior art composition and process seems to be functioning as expected.

Appellant arguments in Section 3 on pages 11-12 have been considered; however, they are not persuasive for the reasons set forth above.

Appellants argues "*In addition, Claim 25 recites, inter alia, particles in the form of aggregates whose  $d_{80}$ , advantageously  $d_{90}$ , is not more than 5 nanometers. Blanchard discloses particles with a  $d_{50}$  of 2.5 nm, and is silent with regard to  $d_{80}$  or  $d_{90}$ . Accordingly, because the references as applied fail to disclose or suggest all features of the claim, Appellants respectfully submit that claim 25 is patentable and the rejection should be reversed.*" This is not deemed persuasive to overcome the rejection of record for at least the reasons set forth above. In addition, contrary to Appellant arguments BLANCHARD does teach in the abstract as describe in the rejection above;

that the particle are not larger than 200nm and  $d_{80}$   $d_{90}$  is not more than 5 nanometers ((para 127 – the size of 80% of the particles was in the 1 to 4 nm (**which can also be expressed as  $d_{80}$  of 1 to 4 nm**)); and para 198 – observation showed that at least 90% of the particles where monocrystalline. It was also observed that the particle size was in the range 2 to 4 nm (**which can also be expressed as  $d_{90}$  of 2 to 4 nm**)); and the aggregates comprising 1 (single) to 5 crystallites (para 25-26); the acid is an amphiphilic acid comprising at least one acid with 11 to 50 (10 to 50) carbon atoms, having at least one alpha, beta, gamma, or delta branch of the atom bearing the acidic hydrogen (para 41-50). Also, a reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, a reference can be used for all and any of it realistically teaches and is not limited to the disclosure in its preferred embodiments See *In re Van Marter*, 144 USPQ 421.

Appellant arguments in Section 4 on pages 13-14 have been considered; however, they are not persuasive for at least the reasons set forth above. In addition, BLANCHARD's invention is also concerned with a method for preparing said dispersion and its use as an additive to diesel fuel for internal combustion engines (abstract), and conventional fuel (para 102).

Appellant arguments in Section 5 on pages 14-15 have been considered; however, they are not persuasive for at least the reasons set forth above. In addition, BLANCHARD's invention is also concerned with a method for preparing said dispersion and its use as an additive to diesel fuel for internal combustion engines (abstract), and conventional fuel (para 102).

Appellant arguments in Section 6 on pages 15-17 have been considered; however, they are not persuasive for at least the reasons set forth above. In addition, BLANCHARD teaches in paragraph 83-86 that the colloidal dispersion comprising particles of a rare earth compound, an acid, an organic phase, an antioxidant (as established above), and an element E, wherein an atomic ratio of antioxidant (as established above) to rare earth compound and the element E is 0.2 to 0.8.

Appellant arguments in Section 7 on page 17 have been considered; however, they are not persuasive for at least the reasons set forth above. In addition, BLANCHARD teaches in paragraph 198-199 the preparation of a colloidal dispersion based on cerium-iron in respective proportions of 90/10 by weight.

Appellant arguments in Sections 8 and 9 on pages 17-21 have been considered; however, they are not persuasive for the reasons set forth above.

The Examiner maintains that a *prima facie* case of obviousness may be made when formulation / compositions have very close components and similar utilities. An obviousness rejection based on similarity in the components and function entails the motivation of one skilled in the art to make a claimed formulation / compositions, in the expectation that formulation / compositions having similar components will produce

similar products." *In re Payne*, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979)

See *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) and *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991) See also MPEP § 2144.08

The office has clearly established a prima facie case of obviousness as outlined above (i.e. all the claimed components are taught by the references in the claimed formulation) and now burden shifts to Appellant to establish evidence otherwise or evidence of criticality and they have not shown that any additional or omission of components would not be expected to be of similar formulation to the evidence of record. This burden is shifted to Appellant once a prima facie case of obviousness has been established and as outlined above, in which one has been established. The Examiner is of the position that the claimed invention would have been obvious because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/CHANTEL GRAHAM/

Examiner, Art Unit 1775

/Michael A Marcheschi/

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